

# **Factors Affecting Source of Family Planning Services in India**

P. S. Nair, Griffith Feeney, Vinod K. Mishra,  
and Robert D. Retherford

National Family Health Survey Subject Reports  
Number 12 • June 1999

International Institute for Population Sciences  
Mumbai, India

East-West Center, Population and Health Studies  
Honolulu, Hawaii, U.S.A.

India's National Family Health Survey (NFHS) was conducted in 1992–93 under the auspices of the Ministry of Health and Family Welfare. The survey provides national and state-level estimates of fertility, infant and child mortality, family planning practice, maternal and child health, and the utilization of services available to mothers and children. The International Institute for Population Sciences, Mumbai, coordinated the project in cooperation with 18 population research centres throughout India, the East-West Center in Honolulu, Hawaii, and Macro International in Calverton, Maryland. The United States Agency for International Development provided funding for the project.

ISSN 1026-4736

This publication may be reproduced for educational purposes.

*Correspondence addresses:*

International Institute for Population Sciences  
Govandi Station Road, Deonar, Mumbai - 400 088, India  
Fax: 91-22-556-3257 • E-mail: [iips.nfhs@access.net.in](mailto:iips.nfhs@access.net.in)

East-West Center, Population and Health Studies  
1601 East-West Road, Honolulu, Hawaii 96848-1601, U.S.A.  
Fax: 1-808-944-7490 • E-mail: [poppubs@ewc.hawaii.edu](mailto:poppubs@ewc.hawaii.edu)

# Factors Affecting Source of Family Planning Services in India

**Abstract.** *The public sector is the primary source of family planning services in India. About four-fifths of women who use, or whose husbands use, modern methods obtain contraceptives from government sources. The government programme relies largely on clinical methods, particularly female sterilization. There is some evidence, however, that the heavy reliance on public-sector services may be changing, along with the emphasis on sterilization.*

*The proportion of couples using private-sector sources appears to be increasing, although levels vary considerably by socioeconomic status and by state. There has been a general expectation that expansion of private-sector services will increase the outreach of India's family planning programme, enhance the programme's credibility, improve the quality of family planning services, increase the acceptability of contraceptive methods, and reduce unintended pregnancies.*

*This Subject Report analyzes factors associated with use of private-sector family planning services, based on data from India's 1992–93 National Family Health Survey (NFHS). Contrary to expectations, the analysis shows little relationship between the proportion of women using private-sector family planning services in a state and state-level fertility rates. This suggests that relatively high reliance on private-sector services is not a prerequisite for low fertility. One possible explanation is that women may use private-sector services not because they are of high quality, but rather because public-sector services are of poor quality or are unavailable. Another possibility is that women are more likely to obtain temporary methods from private-sector sources and that these methods are less effective than sterilization.*

*Other things being equal, it is still reasonable to expect that expansion of private-sector services will enhance the overall performance of India's family planning programme. This report examines seven factors that might influence a woman's use of private-sector services: age, urban/rural residence, education, religion, membership in a scheduled caste or tribe, electronic media exposure, and geographic region. Urban residence and higher levels of education emerge as the variables most closely associated with use of private-sector sources of family planning.*

*Because levels of urbanization and education are rapidly increasing in India, this analysis suggests that reliance on private-sector family planning services is likely to expand in the future. There is a need to ensure that private-sector services are of high quality. At the same time, the lack of correlation between relatively high private-sector use and low fertility levels suggests that India's public-sector family planning programme*

*can increase contraceptive use and reduce fertility substantially even without major involvement from the private sector.*

*India's second National Family Health Survey is currently collecting additional information on the accessibility and quality of family planning services. These data will provide the basis for a more complete analysis of factors affecting the use of public- and private-sector family planning services in India.*

---

***P. S. Nair, Griffith Feeney, Vinod K. Mishra, and Robert D. Retherford***

*P. S. Nair is Director of the Population Research Centre, Thiruvananthapuram, Kerala. Griffith Feeney is a Senior Fellow, Vinod K. Mishra is a Fellow, and Robert D. Retherford is Coordinator of Population and Health Studies at the East-West Center.*

---

## INTRODUCTION

During the past few decades, government health services have been the major providers of modern contraceptive methods in developing countries, often with support from international donor agencies (Curtis and Neitzel 1996). Such family planning services are usually provided at subsidized rates. In recent years, rising costs have raised fears that declines in government support for family planning may slow down the increase in acceptance rates (Weinberger 1989). In a number of Asian countries, such fears have been reinforced by the recent financial crisis.

As funding to support government family planning programmes becomes scarce, the potential role of the private sector assumes more importance. Method availability, service quality, and ability to pay are all crucial factors that help determine whether couples turn to public- or private-sector family planning services. Use of private-sector sources tends to increase over time partly because of rising education (which increases the demand for quality services), urbanization (which implies greater availability of private-sector services), and income (which makes private-sector services more affordable).

The relative importance of public- and private-sector services also depends on differences in service quality and the demand for and availability of specific contraceptive methods (Ahmed et al. 1990; Esseghairi et al. 1991). If the accessibility and quality of government services improve or if the government increases its subsidies and incentives, then the relative importance of private-sector services may not increase despite rising education, urbanization, and income (Cross et al. 1991).

As in other developing countries, the government sector has been the main source of family planning services in India. According to the 1992–93 National Family Health Survey (NFHS), about four-fifths of women using modern methods obtain contraceptives from the public sector and about one-fifth from the private sector (IIPS 1995). The importance of public-sector sources varies by the type of method used. Clinical methods (mainly sterilization) are obtained primarily from public-sector facilities, and pills and condoms are obtained primarily from private-sector sources.

Recently, the government is placing more emphasis on involving the private sector in the delivery of family planning services. Special programmes are being designed and implemented, some on a pilot basis, to involve both non-profit and for-profit private family planning agencies and providers in improving the accessibility and acceptability of family planning (MOHFW 1998).

Some researchers in India have argued that greater involvement of voluntary non-governmental organizations would increase the community orientation of the family planning programme and thus help boost acceptance rates (Pai Panandiker et al. 1987; Talwar 1990; Rao 1990; Khan 1990; Khan and Gupta 1990; Sawhney 1995).

Similar arguments have been applied to social marketing and community-based distribution of contraceptives. Dholakia and colleagues (1985) emphasized that contraceptive marketing strategies need to be participatory and to have visible benefits. Sawhney (1995) examined the private sector's potential for providing family planning services and discussed various ways of involving the private sector in India's national family planning programme. Thapa and colleagues (1994) reviewed the experiences, successes, and challenges faced by organizations involved in the social marketing of condoms in India.

A number of studies have shown that private-sector services often have a better reputation than public-sector services. For example, a qualitative study in rural Uttar Pradesh found that villagers tend to rate private providers of health and family planning services higher than government providers on all indicators of quality except the perceived professional qualifications of providers. The same study noted that the government programme is nevertheless perceived as the primary provider of family planning services (Levine et al. 1992).

A second study in rural Uttar Pradesh noted serious problems with government health and family planning infrastructure and services and concluded that public-sector services are not highly regarded and are less cost-effective than the services offered by private practitioners (Khan et al. 1989). In another study, Khan et al. (1990) showed that public-sector clinics offer poor counseling and follow-up services.

Observers report that the Indian family planning programme tends to have a negative image, that government family planning workers do not have good rapport with their clients, and that members of the community often look down on government family planning workers (Banerji 1986; Pai Panandiker et al. 1987; Bose 1989). In reality, however, government services in many parts of India may be superior to private-sector services, which in remote rural areas tend to be dominated by untrained practitioners and quacks.

A few studies have shown that a shift from the public to the private sector does not necessarily improve contraceptive prevalence or reduce fertility. In a multivariate analysis of data from the 1991 Demographic and Health Survey in Indonesia, Jensen (1996) found that women obtaining contraceptive pills, IUDs, and injections from private-sector sources had higher subsequent fertility than women using public-sector sources. A study in Bangladesh found that women who obtained pills from private pharmacies had higher subsequent fertility than women who obtained pills from government sources (Larsen and Mitra 1992).

This Subject Report focuses on the relative importance of public-sector and private-sector family planning services in India. It also examines factors affecting women's use of the public or private sector to obtain contraceptive methods. The analysis covers four modern contraceptive methods separately plus all modern methods combined.

## DATA AND METHODS

The analysis is based on data from India's National Family Health Survey (NFHS), conducted in 1992–93. The NFHS collected socioeconomic, demographic, and health information from a nationally representative sample of 88,562 households, comprising 514,827 individuals. The basic survey report provides details of the sampling design (IIPS 1995). The units of analysis in the present report are the 30,741 women in the sample who are current users of modern contraceptive methods (sterilization, IUD, pill, condom, and injectables). Eighty-four percent are sterilized, 3% use the pill, 6% use IUDs, 7% use condoms, and about 0.1% use injectables. This report does not include separate results for the 33 injectable users but includes them in results for all modern method users combined.

Women were asked where they had most recently obtained contraceptives. The separate analyses for sterilization, IUDs, and pills specify two categories of source—public sector and private sector. The small 'other sources' category is excluded from the analysis. Because the response variable has only two categories, the analysis uses ordinary (binary) logistic regression to assess the relative importance of factors affecting women's source of supply for these methods.

The separate analysis for condoms specifies three source categories—public sector, private sector, and 'other sources'. The 'other sources' category is necessary primarily because many women report their husbands as the source of condoms but do not know whether their husbands obtain condoms from the public or the private sector. Because the response variable has three categories, the analysis uses multinomial logistic regression to assess factors affecting the source of condom supply. Similarly, the analysis for all modern methods combined has three source categories and uses multinomial logistic regression.

Seven predictor variables are included in the regression analyses. These are woman's age (13–24, 25–34, 35–49 years), residence (urban, rural), education (illiterate, literate but less than middle school complete, middle school complete or more), religion (Hindu, Muslim, other), caste/tribe (scheduled caste or scheduled tribe, other), exposure to electronic mass media (regularly exposed, not regularly exposed), and region (north, central, east or northeast, west, south). Scheduled castes and tribes are groups identified by the Government of India as socially and economically disadvantaged and in need of protection from social injustice and exploitation. A woman is categorized as regularly exposed to the electronic mass media if she watches television or listens to radio at least once a week or goes to a cinema hall or theatre at least once a month.

These predictor variables are included in the analysis because they are known to have substantial effects on contraceptive use (Ramesh et al. 1996) and because they are likely to affect how women choose family planning services. Age is included because contraceptive use in India varies considerably by age. The expectation is that

younger women are more likely than older women to obtain contraceptives from the private sector because older contraceptive users may have been sterilized in the past when private services were not widely available. Urban/rural residence is included because contraceptive use varies considerably by residence and because private-sector services are more widely available in urban areas than in rural areas.

Education is included because contraceptive behaviour is known to vary widely by education and because education is likely to be positively correlated with use of private-sector services. Religion is included because contraceptive behaviour varies widely by religion in India and because Muslim women may be more likely than others to use private-sector sources where they can choose a Muslim provider. Caste/tribe is included because membership in a scheduled caste or scheduled tribe is known to affect contraceptive use. Media exposure is included because it substantially affects contraceptive use (Retherford and Mishra 1997) and because women exposed to electronic media may be more likely than other women to know about and use private-sector services.

As already mentioned, the analysis uses logistic regression and multinomial logistic regression to assess the relative influence of each predictor variable on source of contraceptive supplies. To make the results more accessible to non-statisticians, they are transformed via multiple classification analysis into simple bivariate tables and figures (Retherford and Choe 1993). The underlying logistic regression coefficients are not shown.

The unadjusted percentages of women obtaining contraceptives from different sources are calculated from logistic or multinomial logistic regressions separately for each of the seven predictor variables. Thus, each set of unadjusted percentages pertaining to a specific predictor variable corresponds to a separate logistic or multinomial logistic regression with only one predictor variable. The adjusted percentages, on the other hand, are predicted from a single logistic or multinomial logistic regression that includes all seven predictor variables. In calculating adjusted percentages for any given predictor variable, the other six variables, treated as controls, are held constant by setting them to their mean values. Thus the set of controls changes for each predictor variable under consideration. In calculating both unadjusted and adjusted percentages, the value of the constant term in each multinomial logistic regression is reset so that, with the predictor variable or variables set to their mean values, the percentages predicted by the regression equal the observed percentages.

## **FINDINGS**

### **Relative importance of the public and private sectors**

For each modern contraceptive method and for all modern methods combined, Table 1 shows the distribution of current users by most recent source of supply. Figure 1



**Table 1 Percentage distribution of current users of modern contraceptive methods by most recent source of supply, by method, India: NFHS, 1992–93**

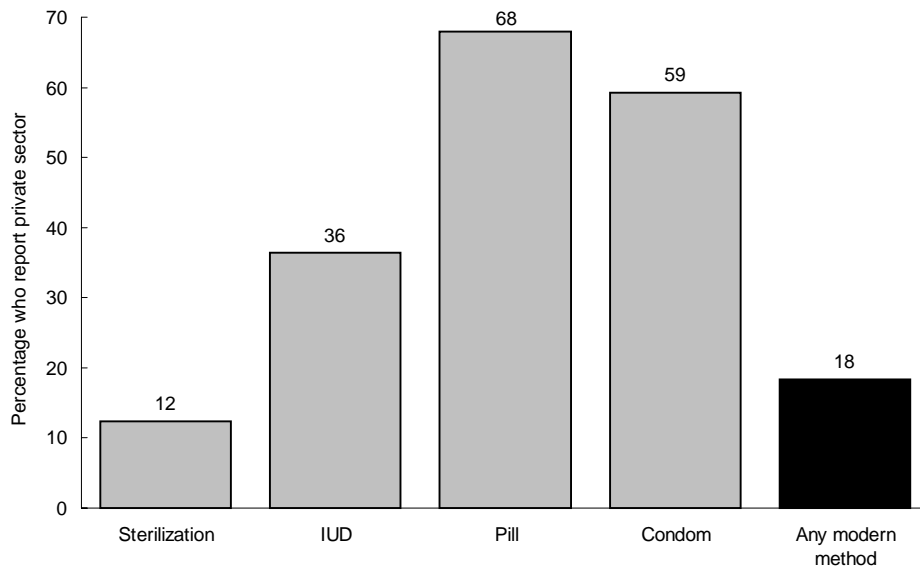
Source of supply	Sterilization	IUD	Pill	Condom	All modern methods
<b>Public sector</b>	86.9	62.5	30.9	15.2	78.8
Government/municipal hospital	56.1	38.4	9.3	6.1	50.2
Primary health centre	21.8	17.4	11.2	5.5	20.1
Sub-centre	0.6	3.9	6.8	2.7	1.1
Family planning clinic	0.8	0.7	0.7	0.2	0.7
Public mobile clinic	0.3	0.2	0.1	0.2	0.3
Camp	7.1	0.0	0.0	0.0	6.0
Government paramedic	0.0	1.3	2.4	0.4	0.2
Other	0.2	0.6	0.4	0.1	0.2
<b>Private sector</b>	12.2	35.8	65.9	59.2	18.4
Private hospital or clinic	11.0	23.7	3.0	0.8	10.7
Pharmacy/drugstore	0.0	0.0	30.4	17.3	2.2
Private doctor	1.1	11.9	6.6	1.5	1.9
Shop	0.0	0.0	24.3	38.9	3.4
Other	0.1	0.2	1.6	0.7	0.2
<b>Other source</b>	0.8	1.6	3.2	25.6	2.5
Husband	0.0	0.0	0.0	21.2	1.4
Friend/relative	0.0	0.0	2.6	0.9	0.1
Other	0.8	1.6	0.6	3.5	1.0
<b>Total percent</b>	100.0	100.0	100.0	100.0	100.0
<b>Number of women</b>	26,051	1,589	1,013	2,055	30,741

Note: In all tables and graphs in this report, percentages and numbers of women are based on the weighted sample.

shows the percentage of users who list the private sector as their most recent source of supply.

The importance of the private sector varies greatly by method. As shown in Figure 1, only 12% of women who are sterilized or whose husbands are sterilized use the private sector, compared with 36% of women who use IUDs, 68% who use the pill, and 59% who use condom. Table 1 shows that private-sector sterilizations occur almost entirely in private hospitals and clinics. Women who obtain IUDs from the private sector obtain their supplies primarily from private hospitals, clinics, or doctors, while women who obtain contraceptive pills and condoms from the private sector obtain their supplies primarily from pharmacies, drugstores, or shops.

Table 1 also shows that public-sector sterilizations occur primarily in public hospitals or primary health centres, with a smaller but still substantial proportion occurring in sterilization camps. Women who obtain IUDs, pills, or condoms from the public sector obtain their supplies primarily from public hospitals or primary health centres, with a smaller proportion obtaining supplies from sub-centres. Twenty-six percent of women who use condoms obtain their supplies from ‘other sources’



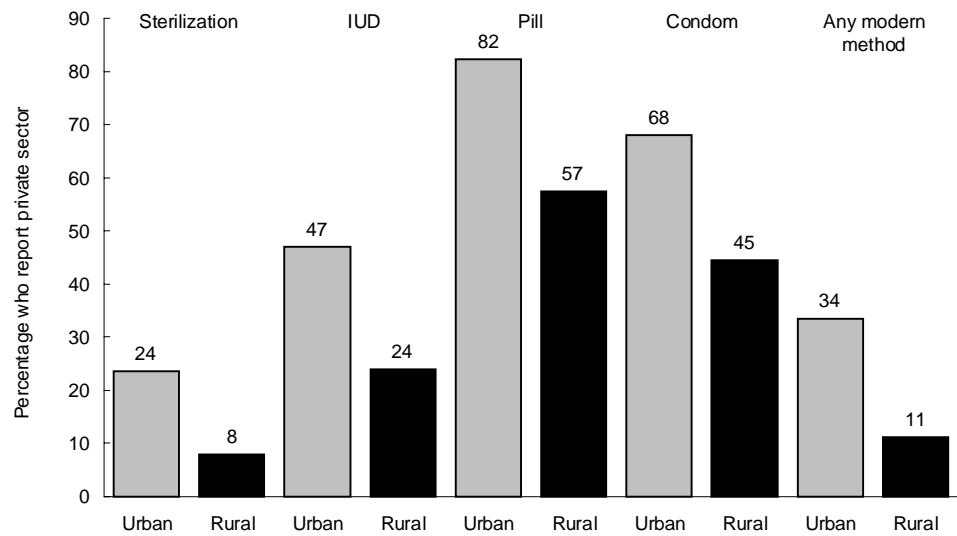
**Figure 1 Percentage of current family planning users who report that they most recently obtained a contraceptive from the private sector, by method, India: NFHS, 1992-93**

*Note:* Table 1 and Figure 1 give slightly different percentages obtaining pills from the private sector because in the figure, but not in the table, the base of the percentages excludes pill users who report 'other sources'. The figure also excludes 'other sources' for sterilization and IUD users, but because the 'other sources' category for these two methods is very small, its exclusion does not make any noticeable difference in the percentages for public and private sector.

(husband, relative, friend, or acquaintance), mainly husbands. The proportion of women using other methods who obtain their contraceptives from 'other sources' is negligible. Because few couples use condoms, only 3% of all modern method users obtain contraceptives from 'other sources'.

Figure 2 shows sources of supply separately for urban and rural areas. For sterilization and for all modern methods combined, the proportion reporting the private sector as their most recent source of supply is about three times higher in urban areas than in rural areas. For IUDs, the proportion is about two times higher, and for pills and condoms, it is about 50% higher. Few private-sector facilities provide sterilization or IUD insertion in rural areas, which probably explains why the urban/rural differential is larger for these methods than for pills or condoms.

Indian states vary widely in the relative importance of public- and private-sector family planning services. Table 2 shows that reliance on the private sector for sterilization ranges from 1% in Himachal Pradesh to 26% in Meghalaya; it is 16% or higher in Delhi, Meghalaya, Nagaland, Goa, Gujarat, Maharashtra, Andhra Pradesh, Kerala, and Tamil Nadu. Reliance on the private sector for IUDs ranges from 3% in



**Figure 2 Percentage of current family planning users who report that they most recently obtained a contraceptive from the private sector, by urban/rural residence and by method, India: NFHS, 1992–93**

Arunachal Pradesh to 69% in Bihar; it is 40% or higher in Delhi, Uttar Pradesh, Bihar, Meghalaya, Goa, Gujarat, Maharashtra, and Tamil Nadu. Reliance on the private sector for pills ranges from 33% in Arunachal Pradesh to 86% in Bihar and Goa; it is 60% or higher in Delhi, Punjab, Bihar, West Bengal, Assam, Tripura, Goa, Maharashtra, Andhra Pradesh, and Kerala. Reliance on the private sector for condoms ranges from 34% in Himachal Pradesh to 83% in Arunachal Pradesh; it is 55% or higher in Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar, Orissa, West Bengal, Arunachal Pradesh, Assam, Manipur, Mizoram, Goa, Gujarat, Maharashtra, Andhra Pradesh, Karnataka, and Tamil Nadu. For all modern methods combined, reliance on the private sector ranges from 6% in Himachal Pradesh and Orissa to 36% in Delhi; it is 20% or higher in Delhi, Bihar, Assam, Meghalaya, Nagaland, Tripura, Goa, Gujarat, Maharashtra, Andhra Pradesh, Kerala, and Tamil Nadu.

As Figure 3 shows, the percentage of women using private-sector family planning services in the various states does not correlate closely with state-level fertility rates. In fact, these two variables are correlated at  $-.11$ , indicating a very small negative correlation. Himachal Pradesh, where only 6% of women who use modern methods obtain family planning from the private sector, and Delhi, where 36% of these women use the private sector, have identical total fertility rates—at 3.0 children per woman. Use of private-sector family planning services also does not correlate closely with level of economic development (not shown).

**Table 2 Percentage distribution of current users of modern contraceptive methods by most recent source of supply, by method and state: NFHS, 1992–93**

State	Sterilization		IUD		Pill	
	Public sector	Private sector	Public sector	Private sector	Public sector	Private sector
<b>India</b>	88	12	64	36	32	68
<b>North</b>						
Delhi	79	21	59	41	23	77
Haryana	96	4	68	32	(46)	(54)
Himachal Pradesh	99	1	84	16	(58)	(42)
Jammu region of Jammu and Kashmir	98	3	80	20	(42)	(59)
Punjab	97	3	75	25	32	68
Rajasthan	98	2	84	16	(50)	(50)
<b>Central</b>						
Madhya Pradesh	96	4	77	23	(44)	(56)
Uttar Pradesh	94	6	60	40	50	51
<b>East</b>						
Bihar	87	13	(31)	(69)	14	86
Orissa	97	3	92	8	(44)	(57)
West Bengal	93	8	(82)	(18)	17	83
<b>Northeast</b>						
Arunachal Pradesh	91	9	(97)	(3)	(67)	(33)
Assam	88	12	(89)	(11)	22	78
Manipur	95	5	78	22	(52)	(48)
Meghalaya	74	26	(59)	(41)	(54)	(46)
Mizoram	95	5	(82)	(18)	(57)	(44)
Nagaland	83	17	(67)	(33)	(55)	(46)
Tripura	97	3	(93)	(7)	17	83
<b>West</b>						
Goa	82	18	53	47	(14)	(86)
Gujarat	82	18	54	46	(46)	(54)
Maharashtra	81	19	48	52	38	62
<b>South</b>						
Andhra Pradesh	80	20	(64)	(36)	(37)	(63)
Karnataka	88	12	63	37	(44)	(56)
Kerala	79	21	76	24	(39)	(61)
Tamil Nadu	84	16	50	50	(45)	(55)

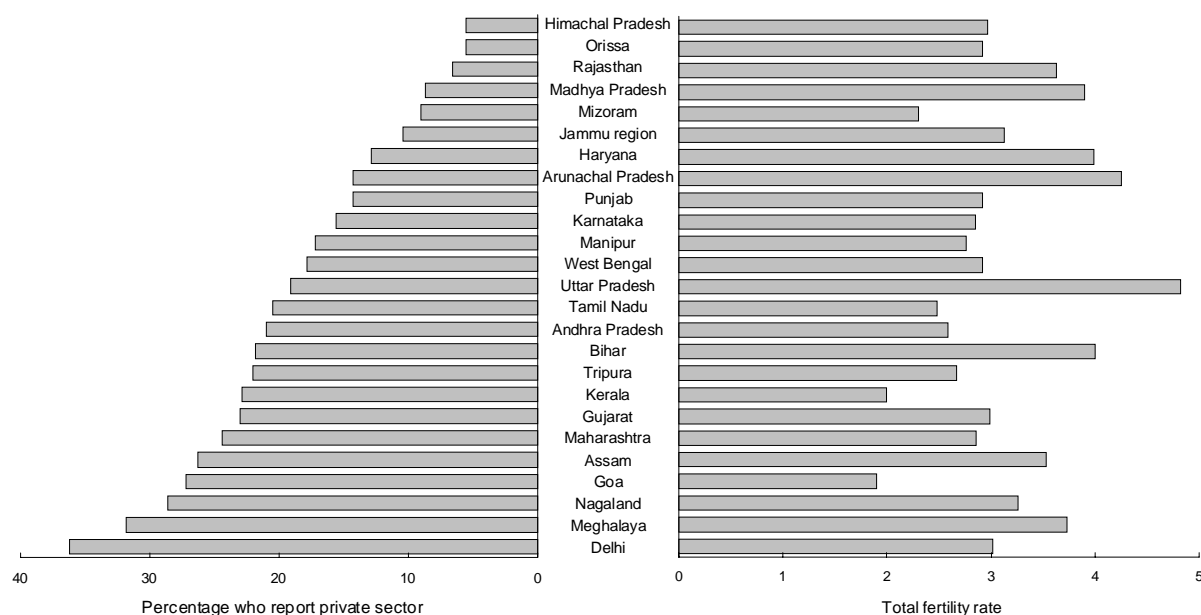
Table 2, continued

State	Condom			Any modern method		
	Public sector	Private sector	Other source	Public sector	Private sector	Other source
<b>India</b>	15	59	26	79	18	3
<b>North</b>						
Delhi	8	47	45	45	36	19
Haryana	17	49	33	83	13	4
Himachal Pradesh	35	34	31	91	6	4
Jammu region of Jammu and Kashmir	8	35	57	81	10	9
Punjab	15	37	48	77	14	9
Rajasthan	28	66	5	92	7	1
<b>Central</b>						
Madhya Pradesh	26	63	11	89	9	2
Uttar Pradesh	12	57	31	75	19	6
<b>East</b>						
Bihar	10	77	13	76	22	2
Orissa	(23)	(57)	(21)	93	6	1
West Bengal	10	66	24	80	18	3
<b>Northeast</b>						
Arunachal Pradesh	(17)	(83)	NC	86	14	NC
Assam	17	73	11	72	26	2
Manipur	(18)	(73)	(9)	82	17	1
Meghalaya	(60)	(40)	NC	68	32	NC
Mizoram	(33)	(67)	NC	91	9	0
Nagaland	(50)	(46)	(5)	71	29	1
Tripura	(31)	(50)	(19)	75	22	3
<b>West</b>						
Goa	21	75	4	72	27	1
Gujarat	6	80	14	76	23	1
Maharashtra	22	72	6	75	24	1
<b>South</b>						
Andhra Pradesh	(31)	(66)	(3)	78	21	1
Karnataka	(15)	(69)	(17)	83	16	1
Kerala	20	53	27	75	23	2
Tamil Nadu	5	68	26	78	21	2

Note: Women who report 'other source' for sterilization, IUD, or pill are excluded from the base populations used to calculate the percentages for these methods, but they are included in the base populations used to calculate the percentages for any modern method.

NC: Not calculated because there are no cases in the category.

( ) Percentage based on fewer than 50 unweighted cases.



**Figure 3 Percentage of current family planning users who report that they most recently obtained a contraceptive from the private sector and total fertility rate, by state, India: NFHS, 1992–93**

Unfortunately, the NFHS does not provide information on the relative quality of public- and private-sector family planning services in the various states, which might help explain these results. One explanation could be that private-sector family planning services are not necessarily superior to public-sector services, especially in rural areas where many poorly trained traditional practitioners provide private services. It may also be that public-sector services are not easily accessible in some areas, so that women must rely on private-sector services even if they are not of particularly high quality.

### Factors affecting use of public- and private-sector services

Although it is impossible to ascertain from the NFHS data exactly why women choose public- or private-sector family planning services, it is possible to assess which demographic and socioeconomic variables are associated with use of the public or private sector. This multivariate analysis uses logistic regression and multinomial logistic regression to estimate the effects of selected variables on most recent source of contraceptives.

Table 3 shows the definitions and mean values of the variables used in the analysis, both for India as a whole and for urban and rural areas separately. Because all variables are categorical, the mean value of each variable consists of

**Table 3 Variable definitions and mean values for current users of modern contraceptive methods, by residence, India: NFHS, 1992–93**

Variable name	Variable definition	Means (expressed as percentages) <sup>a</sup>		
		Total	Urban	Rural
<b>Response variables</b>				
<b>Source of family planning (any modern method)<sup>b</sup></b>				
Public	Source of family planning is public sector	79	62	87
Private	Source of family planning is private sector	18	34	11
Other	Source of family planning is other than public sector or private sector	3	4	2
<b>Source of sterilization<sup>b</sup></b>				
Public	Source of sterilization is public sector	88	76	92
Private	Source of sterilization is private sector	12	24	8
<b>Source of IUD<sup>b</sup></b>				
Public	Source of IUD is public sector	64	53	76
Private	Source of IUD is private sector	36	47	24
<b>Source of pill<sup>b</sup></b>				
Public	Source of pill is public sector	32	18	43
Private	Source of pill is private sector	68	82	57
<b>Source of condom</b>				
Public	Source of condom is public sector	15	8	27
Private	Source of condom is private sector	59	68	45
Other	Source of condom is other than public sector or private sector	26	24	28
<b>Predictor variables (for women using any modern method)</b>				
<b>Age group</b>				
13–24	Woman is age 13–24 years	11	11	11
25–34	Woman is age 25–34 years	44	44	44
35–49	Woman is age 35–49 years	45	46	45
<b>Residence</b>				
Rural	Woman lives in a rural area	67	0	100
Urban	Woman lives in an urban area	33	100	0
<b>Education</b>				
Illiterate	Woman is illiterate	54	31	66
Literate, < middle complete	Woman is literate with less than a middle school education	23	25	22
≥ middle school complete	Woman is literate with at least a middle school education	23	45	13
<b>Religion<sup>c</sup></b>				
Hindu	Woman lives in a household whose head is Hindu	85	80	88
Muslim	Woman lives in a household whose head is Muslim	7	11	5
Other religion	Woman lives in a household whose head is neither Hindu nor Muslim	7	9	7
<b>Scheduled caste or scheduled tribe<sup>d</sup></b>				
SC/ST	Woman lives in a household whose head belongs to a scheduled caste (SC) or a scheduled tribe (ST)	18	11	22
Non-SC/ST	Woman lives in a household whose head does not belong to either a scheduled caste (SC) or a scheduled tribe (ST)	82	89	79
<b>Exposure to media</b>				
Exposed	Woman is regularly exposed to electronic mass media (radio or television once a week or cinema once a month)	64	87	53
Not exposed	Woman is not regularly exposed to radio, television, or cinema	36	13	47

Table 3, continued

Variable name	Variable definition	Means (expressed as percentages) <sup>a</sup>		
		Total	Urban	Rural
<b>Region</b>				
North	Woman lives in Delhi, Haryana, Himachal Pradesh, Jammu region of Jammu and Kashmir, Punjab, or Rajasthan	14	15	13
Central	Woman lives in Madhya Pradesh or Uttar Pradesh	17	15	17
East and Northeast	Woman lives in Bihar, Orissa, West Bengal, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, or Tripura	20	16	22
West	Woman lives in Goa, Gujarat, or Maharashtra	20	24	18
South	Woman lives in Andhra Pradesh, Karnataka, Kerala, or Tamil Nadu	30	30	30
<b>Number of women<sup>e</sup></b>	Weighted number of currently married women age 13–49 who are currently using contraception (including women whose husbands are currently using)	30,741	9,992	20,749

a. Mean values for 'source of sterilization', 'source of IUD', 'source of pill', and 'source of condom' are based on women currently using those methods. Mean values for all other variables are based on women using any modern contraceptive method.

b. Women who report 'other source' for sterilization, IUD, or pill are excluded from the base populations used to calculate the percentages for these methods, but they are included in the base populations used to calculate the percentages for any modern method.

c. The 'other religion' category includes Christian, Sikh, Buddhist, Jain, and other religions.

d. Scheduled castes (SC) and scheduled tribes (ST) are those castes and tribes identified by the Government of India as socially and economically disadvantaged and in need of protection from social injustice and exploitation.

e. The number of women varies slightly for individual variables depending on the number of missing values.

the set of proportions of women falling into each category of that variable. These proportions are expressed as percentages in the table. The means of the response variables have already been discussed in the context of earlier tables and figures. The means of the predictor variables indicate how the 30,741 women who use modern family planning methods are distributed among the categories of each variable.

About two-thirds of the women in the sample live in rural areas. Slightly more than half are illiterate. More than four-fifths are Hindu, and about one-fifth belong to a scheduled caste or scheduled tribe. Almost two-thirds are regularly exposed to the electronic mass media. In general, the number of cases in each variable category is adequate for analysis. The sample distribution is most highly skewed in the case of religion, with 85% Hindu, but there are enough women in the Muslim and 'other religion' categories to provide valid results.

Table 4 shows the unadjusted and adjusted effects of the predictor variables on source of supply for current users of all modern family planning methods. Figure 4



**Table 4 Unadjusted and adjusted effects of selected demographic and socioeconomic factors on source of supply of contraceptives (percentage using specified sources) for currently married women age 13–49 who are currently using any modern contraceptive method (including women whose husbands are currently using), India: NFHS, 1992–93**

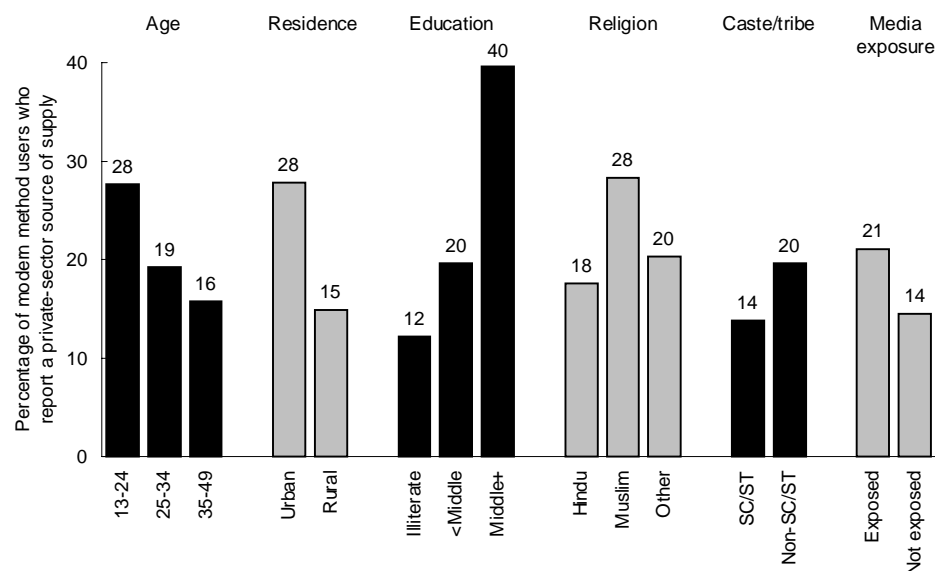
Variable	Unadjusted			Adjusted		
	Public <sup>a</sup>	Private	Other	Public <sup>a</sup>	Private	Other
<b>Age group</b>						
13–24 <sup>a</sup>	65	28	6	66	28	7
25–34	77	20*	3*	78	19*	3*
35–49	83	15*	2*	82	16*	2*
<b>Residence</b>						
Urban	59	36*	4*	69	28*	4*
Rural <sup>a</sup>	86	13	2	83	15	2
<b>Education</b>						
Illiterate <sup>a</sup>	88	10	2	86	12	2
Literate, < middle complete	76	22*	2*	78	20*	2
≥ middle school complete	47	48*	5*	56	40*	4*
<b>Religion</b>						
Hindu <sup>a</sup>	80	17	2	80	18	2
Muslim	66	30*	3*	68	28*	3*
Other religion	73	22*	4*	76	20*	4*
<b>Scheduled caste or scheduled tribe</b>						
SC/ST	89	9*	2*	84	14*	2
Non-SC/ST <sup>a</sup>	76	21	3	78	20	3
<b>Exposure to media</b>						
Exposed	70	27*	3*	76	21*	3
Not exposed <sup>a</sup>	90	9	2	83	14	2
<b>Region</b>						
North	79	14*	8*	79	13*	7*
Central	80	14*	5*	78	16*	6*
East and Northeast	80	18*	3*	77	20*	3*
West	74	24*	1	75	24*	1
South <sup>a</sup>	78	20	2	80	18	2
<b>Number of women<sup>b</sup></b>		30,741			30,740	

*Note:* For definitions of variables see text and Table 3. Both unadjusted and adjusted percentages shown in this table are estimated by multinomial logistic regression. Unadjusted percentages are based on separate multinomial logistic regressions for each predictor variable. Adjusted percentages are based on a single multinomial logistic regression that includes all the predictor variables in the table. For any given predictor variable in the adjusted columns, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values.

a. Reference category

b. In any given unadjusted regression, the number of women may differ slightly, depending on the number of missing values.

\*The coefficient in the underlying multinomial logistic regression differs significantly from 0 at the 5% level.



**Figure 4 Adjusted effects of selected demographic and socioeconomic factors on use of private-sector family planning services among currently married women age 13–49 who are currently using any modern method (including women whose husbands are currently using a method), India: NFHS, 1992–93**

shows adjusted percentages of family planning users who rely on private-sector services. The adjusted percentage of modern method users who use the private sector decreases with women's age but increases with their education level. The percentage using the private sector is much higher in urban areas than in rural areas. It is much higher for Muslims than for Hindus or women of other religions. It is lower for women who belong to scheduled castes or tribes than for other women. Use of the private sector is higher for women who are regularly exposed to the electronic mass media than for other women. All of these differences are in the expected direction and are statistically significant.

Table 5 shows the unadjusted and adjusted effects of the predictor variables on source of supply for all modern family planning methods, separated by urban and rural area. The effects of the predictor variables tend to be rather similar for urban and rural users. The percentage relying on public-sector sources tends to be higher in rural areas, however, while the percentages relying on private-sector sources or on 'other sources' tend to be higher in urban areas.

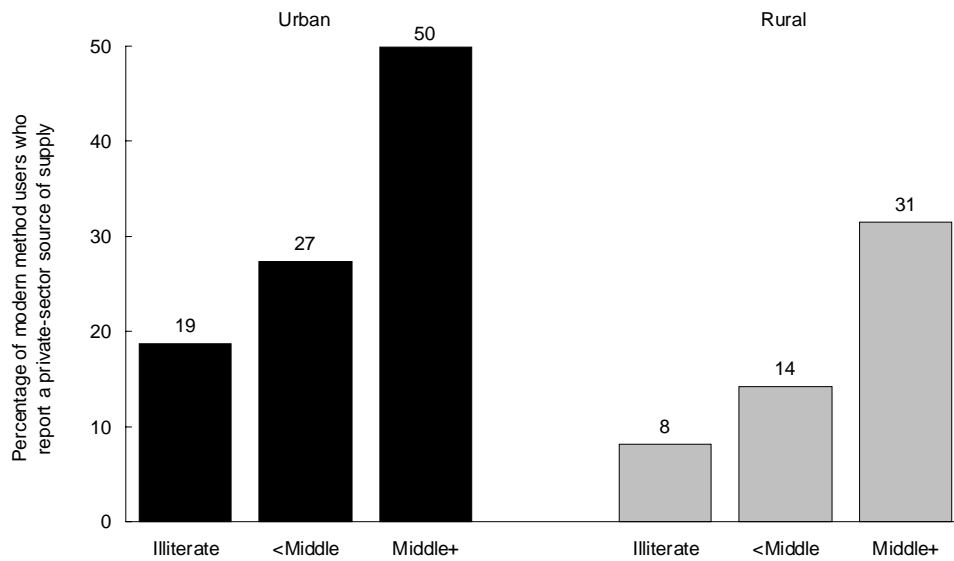
**Table 5 Adjusted effects of selected demographic and socioeconomic factors on source of supply of contraceptives (percentage using specified sources) for currently married women age 13–49 who are currently using any modern contraceptive method (including women whose husbands are currently using), by residence, India: NFHS, 1992–93**

Variable	Urban			Rural		
	Public <sup>a</sup>	Private	Other	Public <sup>a</sup>	Private	Other
<b>Age group</b>						
13–24 <sup>a</sup>	43	48	9	78	16	5
25–34	60	35*	5*	87	11*	2*
35–49	68	29*	3*	89	10*	1*
<b>Education</b>						
Illiterate <sup>a</sup>	79	19	3	90	8	2
Literate, < middle complete	70	27*	3	84	14*	2
≥ middle school complete	45	50*	5*	66	31*	3*
<b>Religion</b>						
Hindu <sup>a</sup>	64	32	4	88	11	2
Muslim	49	46*	5*	79	18*	3*
Other religion	62	33	5	83	14*	3*
<b>Scheduled caste or scheduled tribe</b>						
SC/ST	70	26*	4	90	8*	2
Non-SC/ST <sup>a</sup>	61	34	4	86	12	2
<b>Exposure to media</b>						
Exposed	61	35*	4	85	13*	2
Not exposed <sup>a</sup>	74	23	4	89	9	2
<b>Region</b>						
North	61	25	14*	88	7*	4*
Central	64	28	8*	85	10*	5*
East and Northeast	58	37*	5*	87	12	2*
West	55	43*	2	85	14*	1
South <sup>a</sup>	67	31	2	87	12	1
<b>Number of women</b>		9,991			20,750	

*Note:* For definitions of variables see text and Table 3. Adjusted percentages shown in this table are estimated by multinomial logistic regression. Each set of adjusted percentages by residence and source of supply is based on a single multinomial logistic regression that includes all the predictor variables in the table. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values.

a. Reference category

\*The coefficient in the underlying multinomial logistic regression differs significantly from 0 at the 5% level.



**Figure 5 Adjusted effects of education on use of private-sector family planning services among currently married women age 13–49 who are currently using any modern method (including women whose husbands are currently using a method), by urban/rural residence, India: NFHS, 1992–93**

Women’s education is the only variable that has a consistently large, positive adjusted effect on use of private-sector family planning services in both urban and rural areas. Figure 5 shows the effect of education among users of any modern method. In urban areas, the adjusted private-sector share is 2.6 times higher for women with at least a middle school education than for women who are illiterate. In rural areas, the adjusted private-sector share is 3.9 times higher for women with at least a middle school education than for illiterate women.

The effects of the predictor variables differ somewhat for specific family planning methods. For sterilization, Table 6 shows the unadjusted and adjusted effects of the predictor variables on use of the public or private sector, while Figure 6 depicts the adjusted effects on private-sector use. Age has virtually no effect on use of the private sector for sterilization. A comparison of Figure 6 and Figure 4 shows that the effects of the other predictor variables are quite similar for sterilization and for all modern methods. This is not surprising, given that sterilization accounts for 84% of all modern method use in India.

**Table 6 Unadjusted and adjusted effects of selected demographic and socioeconomic factors on source of sterilization (percentage using specified sources) for currently married women age 13–49 who are sterilized (including women whose husbands are sterilized), India: NFHS, 1992–93**

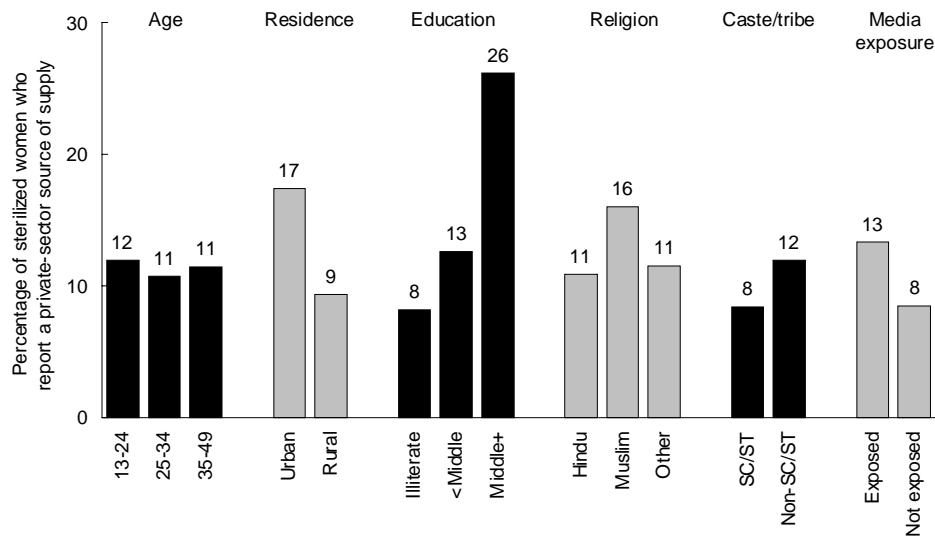
Variable	Unadjusted		Adjusted	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	88	12	88	12
25–34	89	11	89	11
35–49	89	11	89	11
<b>Residence</b>				
Urban	76	24*	83	17*
Rural <sup>a</sup>	92	8	91	9
<b>Education</b>				
Illiterate <sup>a</sup>	93	7	92	8
Literate, < middle complete	85	15*	87	13*
≥ middle school complete	66	34*	74	26*
<b>Religion</b>				
Hindu <sup>a</sup>	89	11	89	11
Muslim	82	18*	84	16*
Other religion	87	13*	89	11
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	94	6*	92	8*
Non-SC/ST <sup>a</sup>	87	13	88	12
<b>Exposure to media</b>				
Exposed	82	18*	87	13*
Not exposed <sup>a</sup>	95	5	92	8
<b>Region</b>				
North	96	4*	95	5*
Central	95	5*	95	5*
East and Northeast	91	9*	90	10*
West	80	20	80	20*
South <sup>a</sup>	82	18	84	16
<b>Number of women<sup>b</sup></b>	25,844		25,843	

*Note:* For definitions of variables see text and Table 3. Both unadjusted and adjusted percentages shown in this table are estimated by logistic regression. Unadjusted percentages are based on separate logistic regressions for each predictor variable. Adjusted percentages are based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable in the adjusted columns, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for sterilization are excluded from the regressions.

a. Reference category

b. In any given unadjusted regression, the number of women may differ slightly, depending on the number of missing values.

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 6 Adjusted effects of selected demographic and socioeconomic factors on use of a private-sector source of sterilization among currently married women age 13–49 who are sterilized (including women whose husbands are sterilized), India: NFHS, 1992–93**

Table 7 shows the adjusted effects of the predictor variables on use of the public or private sector for sterilization, separated by urban and rural area. The effects tend to be similar in urban and rural areas, with the private-sector share somewhat larger in urban areas. Figure 7, which focuses on the adjusted effect of education on use of the private sector, illustrates the general pattern.

Table 8 shows the unadjusted and adjusted effects of the predictor variables on women's use of the public or private sector to obtain IUDs. Figure 8 shows that neither age, religion, membership in a scheduled caste or tribe, nor media exposure has a significant adjusted effect on use of the private sector. Residence and education, however, have strong adjusted effects in the expected direction—urban women and more educated women are much more likely to obtain IUDs from the private sector than are women who live in rural areas or women with less education.

Table 9 shows the adjusted effects of the predictor variables on use of the public or private sector to obtain IUDs, separated by urban and rural area. The effects tend to be similar in urban and rural areas, with the private-sector share somewhat larger in

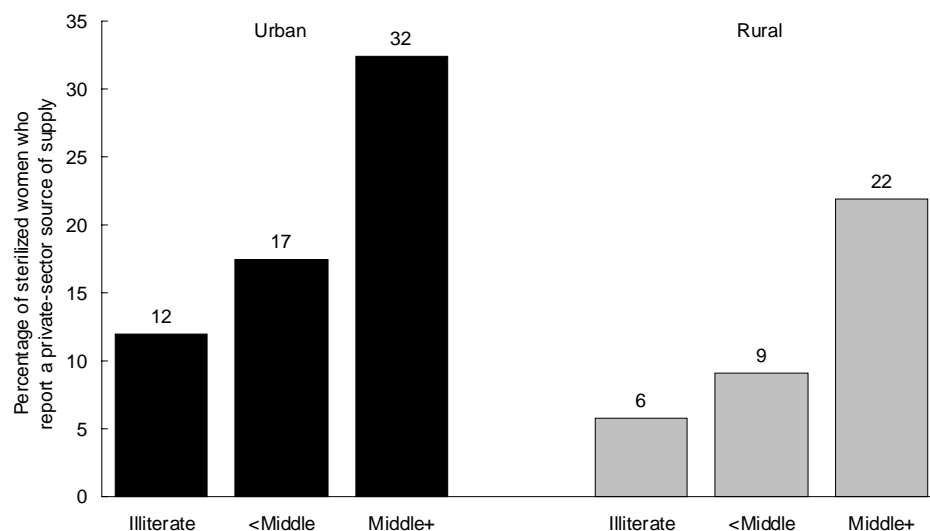
**Table 7 Adjusted effects of selected demographic and socioeconomic factors on source of sterilization (percentage using specified sources) for currently married women age 13–49 who are sterilized (including women whose husbands are sterilized), by residence, India: NFHS, 1992–93**

Variable	Urban		Rural	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	77	23	93	7
25–34	81	19	93	7
35–49	81	19	92	8
<b>Education</b>				
Illiterate <sup>a</sup>	88	12	94	6
Literate, < middle complete	83	17*	91	9*
≥ middle school complete	68	32*	78	22*
<b>Religion</b>				
Hindu <sup>a</sup>	81	19	93	7
Muslim	73	27*	90	10*
Other religion	82	18	92	8
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	85	15*	95	5*
Non-SC/ST <sup>a</sup>	80	20	92	8
<b>Exposure to media</b>				
Exposed	79	21*	91	9*
Not exposed <sup>a</sup>	87	13	94	6
<b>Region</b>				
North	91	9*	97	3*
Central	92	8*	96	4*
East and Northeast	80	20	94	6*
West	69	31*	86	14
South <sup>a</sup>	77	23	88	12
<b>Number of women</b>	7,349		18,494	

*Note:* For definitions of variables see text and Table 3. Adjusted percentages shown in this table are estimated by logistic regression. Each set of adjusted percentages by residence and source of supply is based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for sterilization are excluded from the regressions.

a. Reference category

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 7 Adjusted effects of education on use of a private-sector source of sterilization among currently married women age 13–49 who are sterilized (including women whose husbands are sterilized), by urban/rural residence, India: NFHS, 1992–93**

urban areas. Figure 9, which focuses on the adjusted effect of education on use of the private sector, illustrates the general pattern.

Table 10 shows the unadjusted and adjusted effects of the predictor variables on women’s use of the public or private sector to obtain contraceptive pills. Figure 10 shows that neither age, religion, nor media exposure has a significant adjusted effect on use of the private sector. Again, however, residence and education have strong adjusted effects in the expected direction—urban women and more educated women are much more likely to obtain pills from the private sector than are women who live in rural areas or women with less education. Women who are not members of a scheduled caste or tribe are also more likely to obtain pills from the private sector than are women who are members of a scheduled caste or tribe.

Table 11 shows the adjusted effects of the predictor variables on use of the public or private sector to obtain contraceptive pills, separated by urban and rural area. Again, the effects tend to be similar in urban and rural areas, with the private-sector share tending to be larger in urban areas. Figure 11, which focuses



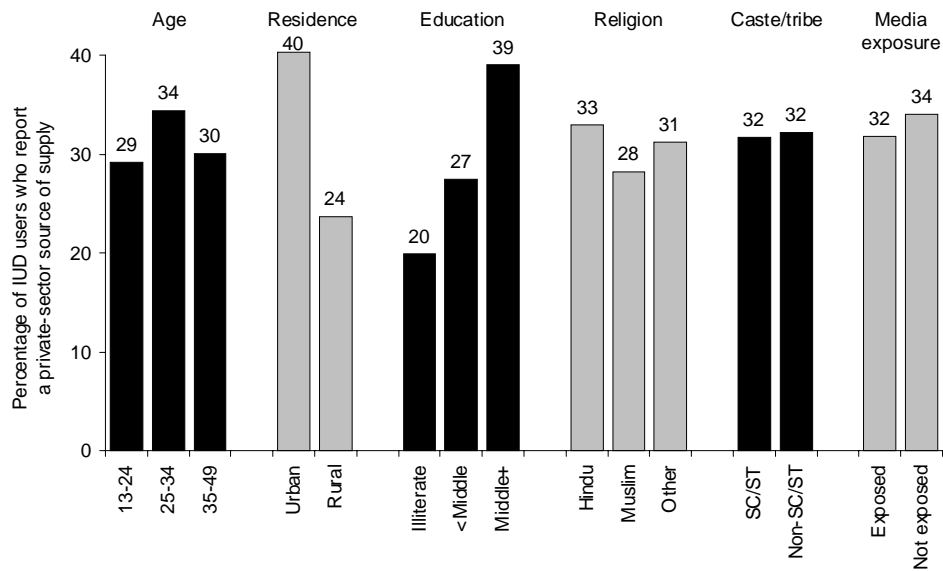
**Table 8 Unadjusted and adjusted effects of selected demographic and socioeconomic factors on source of supply of IUD (percentage using specified sources) for currently married women age 13–49 who are currently using IUD, India: NFHS, 1992–93**

Variable	Unadjusted		Adjusted	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	71	29	71	29
25–34	65	35	66	34
35–49	72	28	70	30
<b>Residence</b>				
Urban	57	43*	60	40*
Rural <sup>a</sup>	79	21	76	24
<b>Education</b>				
Illiterate <sup>a</sup>	84	16	80	20
Literate, < middle complete	75	25*	73	27
≥ middle school complete	58	42*	61	39*
<b>Religion</b>				
Hindu <sup>a</sup>	67	33	67	33
Muslim	71	29	72	28
Other religion	72	28	69	31
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	77	23*	68	32
Non-SC/ST <sup>a</sup>	67	33	68	32
<b>Exposure to media</b>				
Exposed	65	35*	68	32
Not exposed <sup>a</sup>	81	19	66	34
<b>Region</b>				
North	76	24*	75	25*
Central	69	31	71	29
East and Northeast	78	22*	75	25*
West	55	45	59	41
South <sup>a</sup>	64	36	62	38
<b>Number of women</b>	1,564		1,564	

*Note:* For definitions of variables see text and Table 3. Both unadjusted and adjusted percentages shown in this table are estimated by logistic regression. Unadjusted percentages are based on separate logistic regressions for each predictor variable. Adjusted percentages are based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable in the adjusted columns, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for IUDs are excluded from the regressions.

a. Reference category

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 8 Adjusted effects of selected demographic and socioeconomic factors on use of a private-sector source of IUDs among currently married women age 13–49 who are currently using an IUD, India: NFHS, 1992–93**

on the adjusted effect of education on use of the private sector, illustrates the general pattern.

Table 12 shows the unadjusted and adjusted effects of the predictor variables on women’s use of the public sector, the private sector, or ‘other sources’ to obtain condoms. Figure 12 shows that neither age, religion, membership in a scheduled caste or tribe, nor media exposure has a significant effect on use of the private sector to obtain condoms. Again, however, residence and education have strong effects in the expected direction—urban women and more educated women are much more likely to obtain condoms from the private sector than are women who live in rural areas or women with less education.

Table 12 also shows that illiterate women who use condoms are much more likely than more-educated women to report that they obtain condoms from ‘other sources’ (in most cases their husbands). Muslim women are somewhat less likely to mention ‘other sources’ than are either Hindu women or women belonging to other religions. There are also large regional differences in the percentage of women re-

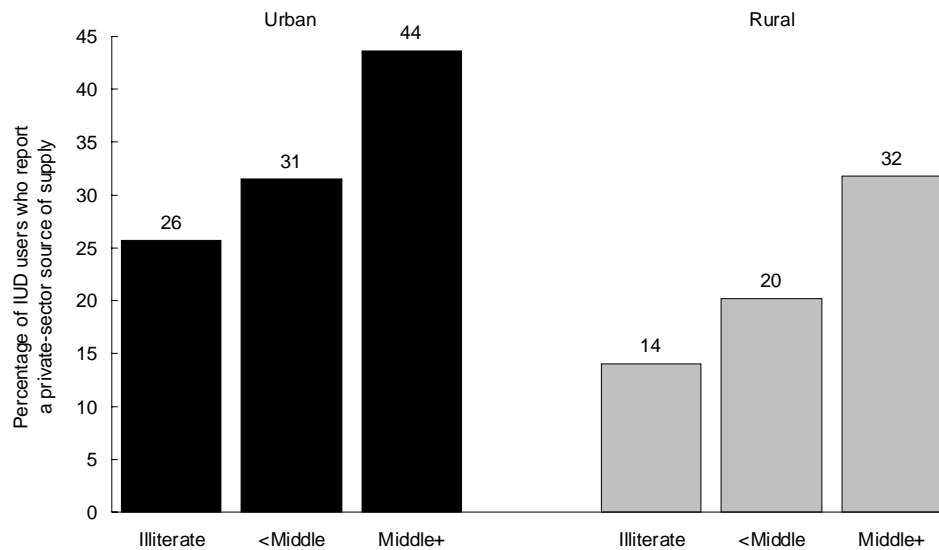
**Table 9 Adjusted effects of selected demographic and socioeconomic factors on source of supply of IUD (percentage using specified sources) for currently married women age 13–49 who are currently using IUD, by residence, India: NFHS, 1992–93**

Variable	Urban		Rural	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	65	35	78	22
25–34	58	42	76	24
35–49	60	40	83	17
<b>Education</b>				
Illiterate <sup>a</sup>	74	26	86	14
Literate, < middle complete	69	31	80	20
≥ middle school complete	56	44*	68	32*
<b>Religion</b>				
Hindu <sup>a</sup>	60	40	76	24
Muslim	62	38	86	14
Other religion	61	39	81	19
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	61	39	79	21
Non-SC/ST <sup>a</sup>	61	39	78	22
<b>Exposure to media</b>				
Exposed	60	40	79	21
Not exposed <sup>a</sup>	70	30	73	27
<b>Region</b>				
North	73	27*	78	22
Central	66	34	78	22
East and Northeast	69	31	83	17
West	49	51	77	23
South <sup>a</sup>	55	45	73	27
<b>Number of women</b>	850		714	

*Note:* For definitions of variables see text and Table 3. Adjusted percentages shown in this table are estimated by logistic regression. Each set of adjusted percentages by residence and source of supply is based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for IUDs are excluded from the regressions.

a. Reference category

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 9 Adjusted effects of education on use of a private-sector source of IUDs among currently married women age 13–49 who are currently using an IUD, by urban/rural residence, India: NFHS, 1992–93**

porting that they obtain condoms from ‘other sources’—ranging from 9% in the western region to 41% in the north.

Table 13 shows the adjusted effects of the predictor variables on source of condoms, separated by urban and rural area. As with other methods, the effects tend to be similar in urban and rural areas, and the private-sector share tends to be larger in urban areas. For ‘other sources’, however, electronic media exposure has a different effect in urban and rural areas, although the results are not statistically significant. In urban areas, women who are exposed to electronic media are less likely than other women to obtain condoms from ‘other sources’, while in rural areas they are more likely.

Figure 13 illustrates the general pattern. In both urban and rural areas, more-educated women are more likely than less-educated women to obtain condoms from the private sector, but many more women in all education groups obtain condoms from the private sector in urban areas than in rural areas.

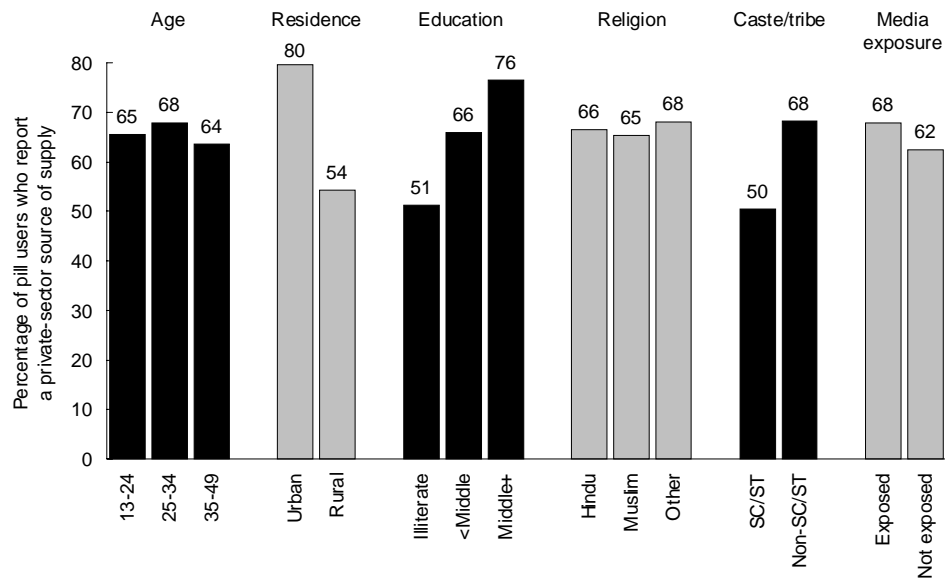
**Table 10 Unadjusted and adjusted effects of selected demographic and socioeconomic factors on source of supply of pills (percentage using specified sources) for currently married women age 13–49 who are currently using contraceptive pills, India: NFHS, 1992–93**

Variable	Unadjusted		Adjusted	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	35	65	35	65
25–34	32	68	32	68
35–49	34	66	36	64
<b>Residence</b>				
Urban	20	80*	20	80*
Rural <sup>a</sup>	46	54	46	54
<b>Education</b>				
Illiterate <sup>a</sup>	57	43	49	51
Literate, < middle complete	30	70*	34	66*
≥ middle school complete	21	79*	24	76*
<b>Religion</b>				
Hindu <sup>a</sup>	33	67	34	66
Muslim	32	68	35	65
Other religion	40	60	32	68
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	60	40*	50	50*
Non-SC/ST <sup>a</sup>	31	69	32	68
<b>Exposure to media</b>				
Exposed	28	72*	32	68
Not exposed <sup>a</sup>	50	50	38	62
<b>Region</b>				
North	39	61	39	61*
Central	51	49	43	57
East and Northeast	22	78*	20	80*
West	43	57	56	44
South <sup>a</sup>	44	56	57	43
<b>Number of women</b>	981		981	

*Note:* For definitions of variables see text and Table 3. Both unadjusted and adjusted percentages shown in this table are estimated by logistic regression. Unadjusted percentages are based on separate logistic regressions for each predictor variable. Adjusted percentages are based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable in the adjusted columns, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for pills are excluded from the regressions.

a. Reference category

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 10 Adjusted effects of selected demographic and socioeconomic factors on use of a private-sector source of pills among currently married women age 13–49 who are currently using pills, India: NFHS, 1992–93**

## CONCLUSION

Many policymakers and programme managers are interested in increasing the use of private-sector family planning services because they expect that fertility will go down as use of the private sector goes up. One assumption behind this expectation is that the private sector offers family planning services of higher quality than the public sector and that women, if given a choice, will prefer to obtain contraceptives from the private sector. Contrary to expectations, however, the proportion of women in different states of India who obtain family planning services from the private sector bears little relation to state-level fertility rates.

The correlation between the total fertility rate and the percentage relying on private-sector sources of family planning is only  $-.11$ . Indeed the two extremes—Himachal Pradesh, where only 6% of women who use modern methods obtain family planning from the private sector, and Delhi, where 36% of these women use the private sector—have identical total fertility rates, at 3.0 children

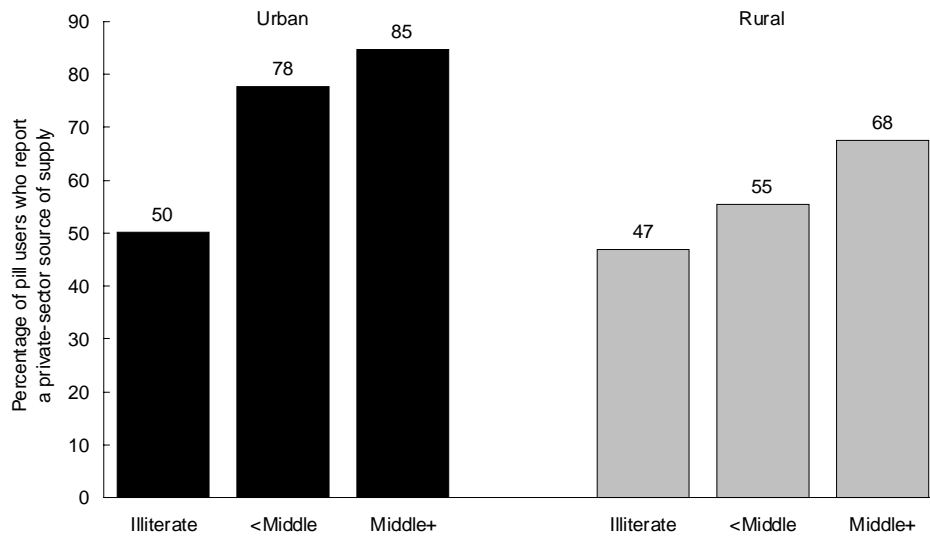
**Table 11 Adjusted effects of selected demographic and socioeconomic factors on source of supply of pills (percentage using specified sources) for currently married women age 13–49 who are currently using contraceptive pills, by residence, India: NFHS, 1992–93**

Variable	Urban		Rural	
	Public <sup>a</sup>	Private	Public <sup>a</sup>	Private
<b>Age group</b>				
13–24 <sup>a</sup>	12	88	49	51
25–34	25	75*	40	60
35–49	29	71*	44	56
<b>Education</b>				
Illiterate <sup>a</sup>	50	50	53	47
Literate, < middle complete	22	78*	45	55
≥ middle school complete	15	85*	32	68*
<b>Religion</b>				
Hindu <sup>a</sup>	21	79	44	56
Muslim	23	77	44	56
Other religion	23	77	46	54
<b>Scheduled caste or scheduled tribe</b>				
SC/ST	37	63	60	40*
Non-SC/ST <sup>a</sup>	21	79	41	59
<b>Exposure to media</b>				
Exposed	21	79	42	58
Not exposed <sup>a</sup>	30	70	47	53
<b>Region</b>				
North	24	76*	48	52
Central	27	73	57	43
East and Northeast	11	89*	29	71*
West	30	70	81	19
South <sup>a</sup>	48	52	63	37
<b>Number of women</b>	415		566	

*Note:* For definitions of variables see text and Table 3. Adjusted percentages shown in this table are estimated by logistic regression. Each set of adjusted percentages by residence and source of supply is based on a single logistic regression that includes all the predictor variables in the table. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. Women who report 'other source' of supply for pills are excluded from the regressions.

a. Reference category

\*The coefficient in the underlying logistic regression differs significantly from 0 at the 5% level. The calculation of confidence intervals takes into account clustering at the level of the primary sampling units.



**Figure 11 Adjusted effects of education on use of a private-sector source of pills among currently married women age 13–49 who are currently using pills, by urban/rural residence, India: NFHS, 1992–93**

per woman. Increased use of the private sector is clearly not a prerequisite for achieving low fertility.

How important is the private sector? For India as a whole, 18% of women who use modern contraception obtained their method most recently from the private sector. For particular methods, the proportion using the private sector ranges from a low of 12% for sterilization to a high of 68% for pills.

This analysis examines seven demographic and socioeconomic variables that are likely to affect women's use of private-sector family planning services. These are age, urban/rural residence, education, religion, membership in a scheduled caste or tribe, exposure to electronic media, and geographic region. Aside from region, which is included as a control variable, the only predictor variables with consistent effects on use of private-sector family planning services are urban/rural residence and education.

The private sector is much more important in urban areas than in rural areas. Among women using any modern method, 34% obtained contraceptives from the private sector in urban areas and 11% in rural areas. Within urban areas, the propor-



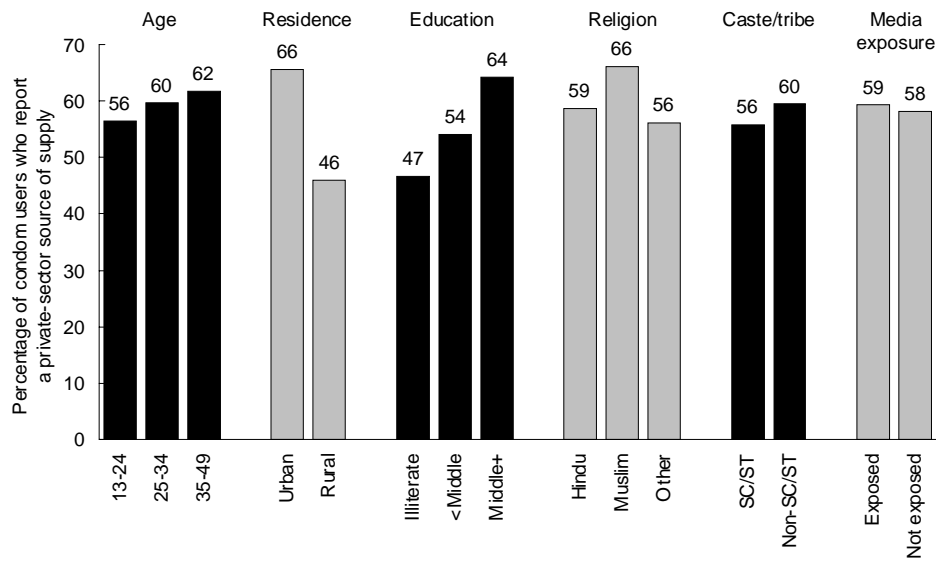
**Table 12 Unadjusted and adjusted effects of selected demographic and socioeconomic factors on source of supply of condoms (percentage using specified sources) for currently married women age 13–49 whose husbands are currently using condoms, India: NFHS, 1992–93**

Variable	Unadjusted			Adjusted		
	Public <sup>a</sup>	Private	Other	Public <sup>a</sup>	Private	Other
<b>Age group</b>						
13–24 <sup>a</sup>	19	55	26	16	56	27
25–34	14	61*	25*	15	60	26
35–49	15	60*	25	15	62	23
<b>Residence</b>						
Urban	9	67*	23*	10	66*	25*
Rural <sup>a</sup>	31	43	26	29	46	25
<b>Education</b>						
Illiterate <sup>a</sup>	25	40	35	19	47	34
Literate, < middle complete	24	51*	25	20	54	26
≥ middle school complete	11	67*	22*	13	64*	23
<b>Religion</b>						
Hindu <sup>a</sup>	15	59	26	16	59	26
Muslim	13	67	20	13	66	21
Other religion	16	53	31	16	56	28
<b>Scheduled caste or scheduled tribe</b>						
SC/ST	25	44*	31	19	56	26
Non-SC/ST <sup>a</sup>	14	61	25	15	60	26
<b>Exposure to media</b>						
Exposed	14	62*	25*	15	59	26
Not exposed <sup>a</sup>	26	44	30	17	58	25
<b>Region</b>						
North	14	44	42*	15	44	41*
Central	15	57	28	13	60	27*
East and Northeast	12	69	19	11	70*	19
West	17	74	9*	21	69	9*
South <sup>a</sup>	16	62	22	18	60	23
<b>Number of women</b>		2,055			2,055	

*Note:* For definitions of variables see text and Table 3. Both unadjusted and adjusted percentages shown in this table are estimated by multinomial logistic regression. Unadjusted percentages are based on separate multinomial logistic regressions for each predictor variable. Adjusted percentages are based on a single multinomial logistic regression that includes all the predictor variables in the table. For any given predictor variable in the adjusted columns, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values. The adjusted values for 'other source' are 25% for both urban and rural areas, but these values are rounded and actually differ significantly from each other as indicated.

a. Reference category

\*The coefficient in the underlying multinomial logistic regression differs significantly from 0 at the 5% level.



**Figure 12 Adjusted effects of selected demographic and socioeconomic factors on use of a private-sector source of condoms among currently married women age 13–49 who are currently using condoms, India: NFHS, 1992–93**

tion using the private sector ranges from 24% for sterilization users to 82% for pill users. In rural areas, the proportion ranges from 8% for sterilization users to 58% for pill users.

The private sector is also more important for women with more education. Because levels of urbanization and education are increasing rapidly in India, these findings suggest that reliance on private-sector sources of family planning will also increase. It is important to ensure that these private-sector services are of high quality.

Unfortunately the NFHS does not provide information on the quality of public- or private-sector family planning services. In some areas, women may be turning to the private sector not because the service is of particularly high quality, but rather because public-sector services are of poor quality or are not easily available. India's second National Family Health Survey, which is currently in progress, will provide additional information on the accessibility and quality of both public- and private-sector family planning services. This new information will make it possible to assess the factors affecting women's choice of family planning services more precisely.

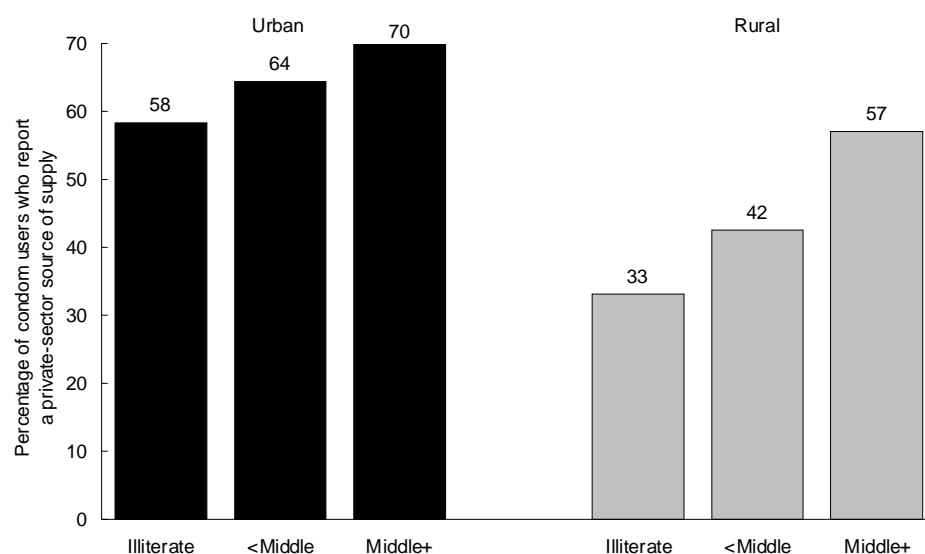
**Table 13 Adjusted effects of selected demographic and socioeconomic factors on source of supply of condoms (percentage using specified sources) for currently married women age 13–49 whose husbands are currently using condoms, by residence, India: NFHS, 1992–93**

Variable	Urban			Rural		
	Public <sup>a</sup>	Private	Other	Public <sup>a</sup>	Private	Other
<b>Age group</b>						
13–24 <sup>a</sup>	7	68	25	31	38	31
25–34	8	67	25	25	49*	26
35–49	8	71	21	28	45	27
<b>Education</b>						
Illiterate <sup>a</sup>	12	58	29	29	33	38
Literate, < middle complete	10	64	26	33	42	24*
≥ middle school complete	7	70*	23	21	57*	22
<b>Religion</b>						
Hindu <sup>a</sup>	8	68	24	28	44	28
Muslim	7	74	19	24	51	26
Other religion	9	63	28	28	44	29
<b>Scheduled caste or scheduled tribe</b>						
SC/ST	9	63	28	33	42	25
Non-SC/ST <sup>a</sup>	8	68	24	27	45	28
<b>Exposure to media</b>						
Exposed	8	69*	24	28	42	30
Not exposed <sup>a</sup>	16	51	33	27	51	23
<b>Region</b>						
North	9	51	40*	25	32	43*
Central	6	69*	26*	26	44	30
East and Northeast	7	76	17	20	57	23
West	8	84	9	47	43	10*
South <sup>a</sup>	11	67	22	30	48	23
<b>Number of women</b>		1,280			775	

*Note:* For definitions of variables see text and Table 3. Adjusted percentages shown in this table are estimated by multinomial logistic regression. Each set of adjusted percentages by residence and source of supply is based on a single multinomial logistic regression that includes all the predictor variables in the table. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. Constant terms in the regressions are reset so that predicted percentages agree with observed percentages when predictor variables in the regressions are set to their mean values.

a. Reference category

\*The coefficient in the underlying multinomial logistic regression differs significantly from 0 at the 5% level.



**Figure 13 Adjusted effects of education on use of a private-sector source of condoms among currently married women age 13–49 who are currently using condoms, by urban/rural residence, India: NFHS, 1992–93**

## ACKNOWLEDGMENTS

The authors thank Fred Arnold for helpful comments on an earlier draft of this report, Victoria Ho and Noreen Tanouye for computer and research assistance, Sidney B. Westley for editorial assistance, and O. P. Sharma for assistance with printing and distribution.

## REFERENCES

- Ahmed, G., E. C. Liner, N. E. Williamson, and W. P. Schellstede. 1990. Characteristics of condom use and associated problems: Experience in Bangladesh. *Contraception* 42(5): 523–33.
- Banerji, D. 1986. *Health and family planning services in India*. New Delhi: Lok Paksh.
- Bose, A. 1988. *From population to people*. New Delhi: B. R. Publishing Corporation.

- Cross, H. E., V. H. Pool, R. E. Levine, and R. M. Cornelius. 1991. *Contraceptive source and the for-profit private sector in Third World family planning: Evidence and implications from trends in private sector use in the 1980s*. Paper presented at the Annual Meeting of the Population Association of America, Washington, D.C.
- Curtis, S. L., and K. Neitzel. 1996. *Contraceptive knowledge, use, and sources*. Demographic and Health Surveys Comparative Studies, No. 19. Calverton, Maryland: Macro International, Inc.
- Dholakia, R. R., G. S. Kindra, and P. Pangotra. 1985. Marketing of birth control in LDCs: With special reference to India. *Canadian Journal of Development Studies* 6(1): 147–59.
- Esseghairi, K., P. R. A. Hinde, J. W. McDonald, and S. Meddeb. 1991. IUD and pill use dynamics in Tunisia and Morocco. *Demographic and Health Surveys World Conference: Proceedings*. Vol. 3. Washington, D.C.: Macro International, Inc.
- IIPS (International Institute for Population Sciences). 1995. *National Family Health Survey (MCH and Family Planning): India, 1992–93*. Bombay: International Institute for Population Sciences.
- Jensen, E. R. 1996. The fertility impact of alternative family planning distribution channels in Indonesia. *Demography* 33(2): 153–65.
- Khan, M. E. 1990. *Experience of NGOs and the organized sector in family planning: Selected observations*. South Asia Study of Population Policy and Programs: India. New York: United Nations Fund for Population Activities.
- Khan, M. E., B. C. Patel, and R. Chandrasekar. 1990. Contraceptive use dynamics of couples availing of services from government family planning clinics—A case study of Orissa. *Journal of Family Welfare* 36(3): 18–38.
- Khan, M. E., R. Anker, and S. K. Dastidar. 1989. Access to health and family planning services in rural Uttar Pradesh: A micro-level evaluation. *Journal of Family Welfare* 35(3): 3–30.
- Khan, M. E., and R. B. Gupta. 1990. *Community participation in family planning: A case study of Kundam Integrated Rural Project*. Bombay: Himalaya Publishing House.
- Larsen, A., and S. N. Mitra. 1992. *Pill use in Bangladesh: Continuation and unintended pregnancies*. Paper presented at the annual meeting of the Population Association of America, Denver, Colorado.
- Levine, R. E., H. E. Cross, S. Chhabra, and H. Viswanathan. 1992. Quality of health and family planning services in rural Uttar Pradesh: The client's view. *Demography India* 21(2): 247–65.
- MOHFW (Ministry of Health and Family Welfare). 1998. *Annual report: 1997–98*. New Delhi: Ministry of Health and Family Welfare, Government of India.

- Pai Panandiker, V. A., A. K. Mehra, and P. N. Chaudhuri. 1987. *People's participation in family planning*. New Delhi: Uppal Publishing House.
- Ramesh, B. M., S. C. Gulati, and R. D. Retherford. 1996. *Contraceptive use in India, 1992–93*. National Family Health Survey Subject Reports, No. 2. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.
- Rao, K. S. 1990. The influence of a community-based distribution programme on contraceptive choice. *Journal of Family Welfare* 36(3): 86–106.
- Retherford, R. D., and M. K. Choe. 1993. *Statistical models for causal analysis*. New York: John Wiley.
- Retherford, R. D., and V. Mishra. 1997. *Media exposure increases contraceptive use*. National Family Health Survey Bulletin, No. 7. Mumbai: International Institute for Population Sciences; and Honolulu: East-West Center.
- Sawhney, N. 1995. Private sector inputs in family planning programme. In H. M. Mathur, ed. *The Family Welfare Programme in India*, pp. 101–27. New Delhi: Vikas Publishing.
- Talwar, P. P. 1990. Increasing contribution of voluntary organisations in attaining population stabilisation. *Demography India* 19(1): 17–26.
- Thapa, S., C. V. S. Prasad, P. H. Rao, L. J. Severy, and S. R. Rao. 1994. Social marketing of condoms in India. *Advances in Population: Psychological Perspectives* 2:171–204.
- Weinberger, M. B. 1989. Trends in contraceptive prevalence: Are prevalence rates stagnating? In *International Population Conference, New Delhi: Proceedings*, vol. 1, pp. 217–38. Liege, Belgium: International Union for the Scientific Study of Population.